

## A THERMO-ELECTRIC COOLER CIRCUIT AND METHOD FOR DWDM/TDM MODE SELECTION

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5

### ABSTRACT OF THE DISCLOSURE

An optical transceiver and method therefore provides a cooled laser diode configured to run in either a low power mode or a standard mode. A method for a thermo-electric cooler includes coupling the thermo-electric cooler to a laser diode, operating the thermo-electric cooler in one of a low power mode and a standard mode, and switching between the low power mode and the standard mode. The laser diode is configured to transmit signals in the low power mode and the standard mode. The low power mode maintains the laser diode at a temperature within a predetermined range of temperatures. The standard mode maintains the laser diode at a temperature that corresponds to a predetermined wavelength of light output from the laser diode. In one embodiment, the low power mode is a Time Division Multiplexing (TDM) mode and the standard mode is a Dense Wavelength Division Multiplexing (DWDM) mode. The optical transceiver includes a temperature circuit, a thermo-electric cooler coupled to the temperature circuit, and a laser diode coupled to the thermo-electric cooler. The thermo-electric cooler is responsive to inputs from the temperature circuit, the inputs identifying one of at least a first mode and a second mode, wherein a choice of mode is a function of a performance requirement. The optical transceiver includes a temperature circuit that includes a switch configured to alter the thermo-electric cooler between the first mode and the second mode.